

## SEQUENCE LISTING

RECEIVED

MON 0 8 5005

TECH CENTER 1600/2900

Soo Young Lee Yongwon Choi

<120> Signal Transducer for the TNF Receptor Super Family and Uses Thereof

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<130> 600-1-198CIP1CON
<140> 09/716,536
<141> 2000-11-20
<150> 60/042,293
<151> 1997-04-01
<150> 60/042,747
<151> 1997-04-07
<150> 08/834,903
<151> 1997-04-07
<160> 16
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<211> 469
<212> PRT
<213> Homo sapiens
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Ser Arg Asp Val Ala Ala Ile His Cys Gly His Thr Phe His Leu Gln
                                25
Cys Leu Ile Gln Ser Phe Glu Thr Ala Pro Ser Arg Thr Cys Pro Gln
                            40
Cys Arg Ile Gln Val Gly Lys Arg Thr Ile Ile Asn Lys Leu Phe Phe
Asp Leu Ala Gln Glu Glu Asn Val Leu Asp Arg Glu Phe Leu Lys
                                        75
                    70
Asn Glu Leu Asp Asn Val Arg Ala Gln Leu Ser Gln Lys Asp Lys Glu
                                    90
Lys Arg Asp Ser Gln Val Ile Ile Asp Thr Leu Arg Asp Thr Leu Glu
                                                     110
            100
                                105
Glu Arg Asn Ala Thr Val Val Ser Leu Gln Gln Ala Leu Gly Lys Ala
                            120
                                                125
        115
Glu Met Leu Cys Ser Thr Leu Lys Lys Gln Met Lys Tyr Leu Glu Gln
                        135
                                            140
Gln Gln Asp Glu Thr Lys Gln Ala Gln Glu Glu Ala Gly Arg Leu Arg
                                        155
                    150
Ser Lys Met Lys Thr Met Glu Gln Ile Glu Leu Leu Gln Ser Gln
                                    170
Leu Pro Glu Val Glu Glu Met Ile Arg Asp Met Gly Val Gly Gln Ser
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185
            180
Ala Val Glu Gln Leu Ala Val Tyr Cys Val Ser Leu Lys Lys Glu Tyr
                            200
Glu Asn Leu Lys Glu Ala Arg Lys Ala Ser Gly Glu Val Ala Asp Lys
                                            220
                       215
Leu Arg Lys Asp Leu Phe Ser Ser Arg Ser Lys Leu Gln Thr Val Tyr
                                        235
                    230
Ser Glu Leu Asp Gln Ala Lys Leu Glu Leu Lys Ser Ala Gln Lys Asp
                                    250
                2.45
Leu Gln Ser Ala Asp Lys Glu Ile Met Ser Leu Lys Lys Lys Leu Thr
                                                    270
                                265
Met Leu Gln Glu Thr Leu Asn Leu Pro Pro Val Ala Ser Glu Thr Val
                            280
Asp Arg Leu Val Leu Glu Ser Pro Ala Pro Val Glu Val Asn Leu Lys
                                            300
                        295
Leu Arg Arg Pro Ser Phe Arg Asp Asp Ile Asp Leu Asn Ala Thr Phe
                                        315
                   310
Asp Val Asp Thr Pro Pro Ala Arg Pro Ser Ser Ser Gln His Gly Tyr
                                    330
                325
Tyr Glu Lys Leu Cys Leu Glu Lys Ser His Ser Pro Ile Gln Asp Val
                                345
Pro Lys Lys Ile Cys Lys Gly Pro Arg Lys Glu Ser Gln Leu Ser Leu
                            360
Gly Gly Gln Ser Cys Ala Gly Glu Pro Asp Glu Glu Leu Val Gly Ala
                        375
                                            380
Phe Pro Ile Phe Val Arg Asn Ala Ile Leu Gly Gln Lys Gln Pro Lys
                                        395
                    390
Arg Pro Arg Ser Glu Ser Ser Cys Ser Lys Asp Val Val Arg Thr Gly
                                    410
Phe Asp Gly Leu Gly Gly Arg Thr Lys Phe Ile Gln Pro Thr Asp Thr
                                425
            420
Val Met Ile Arg Pro Leu Pro Val Lys Pro Lys Thr Lys Val Lys Gln
                                                445
                           440
Arg Val Arg Val Lys Thr Val Pro Ser Leu Phe Gln Ala Lys Leu Asp
                        455
Thr Phe Leu Trp Ser
465
<210> 2
<211> 470
<212> PRT
<213> Mus musculus
<400> 2
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                                    10
Ser Arg Asp Val Ala Ala Ile His Cys Gly His Thr Phe His Leu Gln
                                2.5
Cys Leu Ile Gln Trp Phe Glu Thr Ala Pro Ser Arg Thr Cys Pro Gln
                            40
Cys Arg Ile Gln Val Gly Lys Lys Thr Ile Ile Asn Lys Leu Phe Phe
                        55
Asp Leu Ala Glu Glu Glu Asn Val Leu Asp Ala Glu Phe Leu Lys
                                        75
Asn Glu Leu Asp Ser Val Lys Ala Gln Leu Ser Gln Lys Asp Arg Glu
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90

85

Lys Arg Asp Ser Gln Ala Ile Ile Asp Thr Leu Arg Asp Thr Leu Glu 100 105 Glu Arg Asn Ala Thr Val Glu Ser Leu Gln Asn Ala Leu Asn Lys Ala 120 Glu Met Leu Cys Ser Thr Leu Lys Lys Gln Met Lys Phe Leu Glu Gln 1.35 Arg Gln Asp Glu Thr Lys Gln Ala Arg Glu Glu Ala His Arg Leu Lys 150 155 Cys Lys Met Lys Thr Met Glu Gln Ile Glu Leu Leu Gln Ser Gln 170 165 Arg Ser Glu Val Glu Glu Met Ile Arg Asp Met Gly Val Gly Gln Ser 185 Ala Val Glu Gln Leu Ala Val Tyr Cys Val Ser Leu Lys Lys Glu Tyr 200 Glu Asn Leu Lys Glu Ala Arg Lys Ala Thr Gly Glu Leu Ala Asp Arg 215 Leu Lys Lys Asp Leu Val Ser Ser Arg Ser Lys Leu Lys Thr Leu Asn 235 230 Thr Glu Leu Asp Gln Ala Lys Leu Glu Leu Arg Ser Ala Gln Lys Asp 250 245 Leu Gln Ser Ala Asp Gln Glu Ile Thr Ser Leu Arg Lys Lys Ser Asp 270 265 260 Asp Pro Pro Gly Asn Leu Glu Pro Ala Ser Ala Thr Asn Glu Thr Val 280 Ser Arg Leu Val Phe Glu Ser Pro Ala Pro Val Glu Met Met Asn Pro 295 300 Arg Leu His Gln Pro Pro Phe Gly Asp Glu Ile Asp Leu Asn Thr Thr 315 310 Phe Asp Val Asn Thr Pro Pro Thr Gln Thr Ser Gly Ser Gln His Cys 330 325 Leu Pro Lys Lys Leu Cys Leu Glu Arg Ala Arg Ser Pro Met Gln Asn 345 340 Val Leu Lys Lys Val His Lys Val Ser Lys Pro Glu Ser Gln Leu Ser 360 Leu Gly Gly Gln Arg Cys Val Gly Glu Leu Asp Glu Glu Leu Ala Gly 380 375 Ala Phe Pro Leu Phe Ile Arg Asn Ala Val Leu Gly Gln Lys Gln Pro 395 390 Asn Arg Thr Thr Ala Glu Ser Arg Ser Ser Thr Asp Val Val Arg Ile 410 Gly Phe Asp Gly Leu Gly Gly Arg Thr Lys Phe Ile Gln Pro Arg Asp 425 420 Thr Thr Ile Ile Arg Pro Val Pro Val Lys Ser Lys Ala Lys Ser Lys 440 Gln Lys Val Arg Ile Lys Thr Val Ser Ser Ala Ser Gln Pro Lys Leu 455 Asp Thr Phe Leu Cys Gln 470

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<210> 3
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<212> PRT
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<213> Homo sapiens

<400> 3

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                                2.5
Ala Gln Leu Ser Gln Lys Asp Lys Glu Lys Arg Asp Ser Gln Val Ile
                            40
Ile Asp Thr Leu Arg Asp Thr Leu Glu Glu Arg Asn Ala Thr Val Val
                       55
Ser Leu Gln Gln Ala Leu Gly Lys Ala Glu Met Leu Cys Ser Thr Leu
                                        75
                    70
Lys Lys Gln Met Lys Tyr Leu Glu Gln Gln Gln Asp Glu Thr Lys Gln
                                    90
                85
Ala Gln Glu Glu Ala Gly Arg Leu Arg Ser Lys Met Lys Thr Met Glu
                                105
Gln Ile Glu Leu Leu Gln Ser Gln Leu Pro Glu Val Glu Glu Met
                            120
Ile Arg Asp Met Gly Val Gly Gln Ser Ala Val Glu Gln Leu Ala Val
                                            140
                       135
Tyr Cys Val Ser Leu Lys Lys Glu Tyr Glu Asn Leu Lys Glu Ala Arg
                                       155
                   150
Lys Ala Ser Gly Glu Val Ala Asp Lys Leu Arg Lys Asp Leu Phe Ser
                                    170
                165
Ser Arg Ser Lys Leu Gln Thr Val Tyr Ser Glu Leu Asp Gln Ala Lys
                                185
            180
Leu Glu Leu Lys Ser Ala Gln Lys Asp Leu Gln Ser Ala Asp Lys Glu
                           200
Ile Met Ser Leu Lys Lys Lys Leu Thr Met Leu Gln
                        215
<210> 4
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<212> PRT
<213> Mus musculus
<400> 4
Lys Thr Ile Ile Asn Lys Leu Phe Phe Asp Leu Ala Gln Glu Glu
                                    10
Asn Val Leu Asp Ala Glu Phe Leu Lys Asn Glu Leu Asp Ser Val Lys
                                25
Ala Gln Leu Ser Gln Lys Asp Arg Glu Lys Arg Asp Ser Gln Ala Ile
Ile Asp Thr Leu Arg Asp Thr Leu Glu Glu Arg Asn Ala Thr Val Glu
Ser Leu Gln Asn Ala Leu Asn Lys Ala Glu Met Leu Cys Ser Thr Leu
                    70
Lys Lys Gln Met Lys Phe Leu Glu Gln Arg Gln Asp Glu Thr Lys Gln
                                    90
Ala Arg Glu Glu Ala His Arg Leu Lys Cys Lys Met Lys Thr Met Glu
                                105
            100
Gln Ile Glu Leu Leu Gln Ser Gln Arg Ser Glu Val Glu Glu Met
                            120
                                                125
Ile Arg Asp Met Gly Val Gly Gln Ser Ala Val Glu Gln Leu Ala Val
                                            140
                        135
Tyr Cys Val Ser Leu Lys Lys Glu Tyr Glu Asn Leu Lys Glu Ala Arg
                                        155
                    150
Lys Ala Thr Gly Glu Leu Ala Asp Arg Leu Lys Lys Asp Leu Val Ser
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170

165

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Ser Arg Ser Lys Leu Lys Thr Leu Asn Thr Glu Leu Asp Gln Ala Lys
                                185
            180
Leu Glu Leu Arg Ser Ala Gln Lys Asp Leu Gln Ser Ala Asp Gln Glu
                            200
Ile Thr Ser Leu Arg Lys Lys Ser Asp Asp Pro Pro
                        215
<210> 5
<211> 51
<212> PRT
<213> Homo sapiens
<400> 5
Arg Ala Leu Cys Thr Ile Cys Ser Asp Phe Phe Asp His Ser Arg Asp
                                    10
1
Val Ala Ala Met Asp Cys Gly His Thr Phe His Leu Gln Cys Leu Ile
                                25
Gln Ser Phe Glu Thr Ala Pro Ser Arg Thr Cys Pro Gln Cys Arg Ile
        35
Gln Val Gly
    50
<210> 6
<211> 51
<212> PRT
<213> Mus musculus
<400> 6
Leu Ser Leu Cys Thr Ile Cys Ser Asp Phe Phe Asp His Ser Arg Asp
                                    10
                 5
Val Ala Ala Ile His Cys Gly His Thr Phe His Leu Gln Cys Leu Ile
                                25
Gln Trp Phe Glu Thr Ala Pro Ser Arg Thr Cys Pro Gln Cys Arg Ile
                            40
Gln Val Gly
    50
<210> 7
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<212> DNA
<213> Homo sapiens
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tgcactatct gctccgactt cttcgatcac tcccgcgacg tggccgccat ccactgcggc 180
cacaccttcc acttgcagtg cctaattcag tcctttgaga cagcaccaag tcggacctgc 240
ccacagtgcc gaatccaggt tggcaaaaga accattatca ataagctctt ctttgatctt 300
gcccaggagg aggagaatgt cttggatcga gaattcttaa agaatgaact ggacaatgtc 360
agagcccagc tttcccagaa agacaaggag aaacgagaca gccaggtcat catcgacact 420
ctgcgggata cgctggaaga acgcaatgct actgtggtat ctctgcagca ggccttgggc 480
aaggccgaga tgctgtgctc cacactgaaa aagcagatga agtacttaga gcagcagcag 540
gatgagacca aacaagcaca agaggaggcg ggccggctca ggagcaagat gaagaccatg 600
gagcagattg agcttctact ccagagccag ctccctgagg tggaggagat gatccgagac 660
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atgggtgtgg gacagtcagc ggtggaacag ctggctgtgt actgtgtgtc tctcaagaaa 720
gagtacgaga atctaaaaga ggcacggaag gcctcagggg aggtggctga caagctgagg 780
aaggatttgt tttcctccag aagcaagttg cagacagtct actctgaatt ggatcaggcc 840
aagttagaac tgaagtcagc ccagaaggac ttacagagtg ctgacaagga aatcatgagc 900
ctgaaaaaga agctaacgat gctgcaggaa accttgaacc tgccaccagt ggccagtgag 960
actgtcgacc gcctggtttt agagagccca gccctgtgg aggtgaatct gaagctccgc 1020
cggccatcct tccgtgatga tattgatctc aatgctacct ttgatgtgga tactccccca 1080
gcccggccct ccagctccca gcatggttac tacgaaaaac tttgcctaga gaagtcacac 1140
tccccaattc aggatgtccc caagaagata tgcaaaggcc ccaggaagga gtcccagctc 1200
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atttttgtcc ggaatgccat cctaggccag aaacagccca aaaggcccag gtcagagtcc 1320
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aagcagaggg tgagggtgaa gaccgtgcct tctctcttcc aggccaagct ggacaccttc 1500
ctgtggtcgt gagaacagtg agtctgacca atggccagac acatgcctgc aacttgtagg 1560
tcaaggactg tccaggcagg gtttgtggac agagccctac tttcgggacc agcctgaggt 1620
gtaagggcag acaaacaggt gagggtgagt gtgacaccca gagactgctc ttcctgccct 1680
caccetgece cactectacg actgggaget gacatgacea geceaetgat cetgteagea 1740
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tctcaggcag cctcagccca agcttctacc tgcctttgac ttgcttctag catagcctgg 1920
gccaagcagg gtggggaatg gaggatagac atgggatgta tggagaggat ggaagatttt 1980
                                                                  2007
cccgaaaaaa aaaaaaaaa aaaaaaa
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<210> 8 <211> 1975 <212> DNA

<213> Mus musculus

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gaccagttta ctgttccgat cagcagggcc tacttccagt tgcagggttt tgcttatagc 1740
tacaaccagg tgtggctgga ctccttttgt ttttatagaa cagggtcaca ttgactctaa 1800
gtggatggga gtgctggagg atcctatgca ggctggagga ccctgcgctt gaactcctgc 1860
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<223> fragment
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Ala Gln Cys Gly His Arg Tyr Cys Ser Phe Cys Leu Thr Ser Ile Leu
                              25
Ser Ser Gly Pro Gln Asn Cys Ala Ala Cys Val Tyr Glu Gly Leu
                           40
<210> 10
<211> 46
<212> PRT
<213> Artificial Sequence
<220>
<223> fragment
<400> 10
Lys Tyr Lys Cys Glu Lys Cys Arg Leu Val Leu Cys Asn Pro Lys Gln
                                  10
Thr Glu Cys Gly His Arg Phe Cys Glu Ser Cys Met Ala Ala Leu Leu
           20
                              25
Ser Ser Ser Ser Pro Lys Cys Thr Ala Cys Gln Glu Ser Ile
                           40
<210> 11
<211> 43
<212> PRT
<213> Artificial Sequence
<220>
<223> fragment
<400> 11
Glu Arg Thr Cys Lys Val Cys Met Asp Arg Glu Val Ser Ile Val Phe
                                  10
Ile Pro Cys Gly His Leu Val Val Cys Gln Glu Cys Ala Pro Ser Leu
                               25
Arg Lys Cys Pro Ile Cys Gly Arg Gly Thr Ile
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<210> 12
<211> 47
<212> PRT
<213> Artificial Sequence
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<223> fragment
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Phe Gln Leu Cys Lys Ile Cys Ala Glu Asn Asp Lys Asp Val Lys Ile
                                    10
Glu Pro Cys Gly His Leu Met Cys Thr Ser Cys Leu Thr Ser Trp Gln
                                25
Glu Ser Glu Gly Gln Gly Cys Pro Phe Cys Arg Cys Glu Ile Lys
                            40
<210> 13
<211> 48
<212> PRT
<213> Artificial Sequence
<220>
<223> fragment
<400> 13
Glu Leu Met Cys Pro Ile Cys Leu Asp Met Leu Lys Asn Thr Met Thr
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Thr Lys Glu Cys Leu His Arg Phe Cys Ser Asp Cys Ile Val Thr Ala
                               25
Leu Arg Ser Gly Asn Lys Glu Cys Pro Thr Cys Arg Lys Lys Leu Val
<210> 14
<211> 47
<212> PRT
<213> Artificial Sequence
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<223> fragment
<400> 14
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Ile Glu Cys Gly His Ser Phe Cys Gln Glu Cys Ile Ser Gln Val Gly
           20
                               25
Lys Gly Gly Ser Val Cys Ala Val Cys Arg Gln Arg Phe Leu
<210> 15
<211> 50
<212> PRT
<213> Artificial Sequence
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(rist

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<220>
<223> fragment
<400> 15
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Leu Arg Ile Leu Pro Cys Ser His Ala Tyr His Cys Lys Cys Val Asp
Pro Trp Leu Thr Lys Thr Lys Lys Thr Cys Pro Val Cys Lys Gln Lys
                           40
Val Val
    50
<210> 16
<211> 49
<212> PRT
<213> Artificial Sequence
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<223> fragment
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                                    10
Tyr Met Cys Gly His Met Cys Met Cys Tyr Asp Cys Ala Ile Glu Gln
                                25
Trp Arg Gly Val Gly Gly Gln Cys Pro Leu Cys Arg Ala Val Ile
                                                45
                            40
Arg
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